

REMARKS

The present invention relates to a propylene polymer and its moldings, and also to a method for producing propylene polymers. Precisely, the invention relates to a propylene polymer of which the advantages are that its modulus of elasticity is well balanced with its melting point, that its low-temperature moldability and workability are good and that it has well-balanced mechanical strength; and relates to moldings obtained by molding the polymer; and also relates to a method for producing such propylene polymers. As having good low-temperature heat-sealability, good transparency, good scratch resistance and good mechanical strength, the propylene polymer of the invention is suitable for wrapping or packaging films.

The present invention is drawn to a propylene polymer having a combination of properties not disclosed or suggested by the prior art. As recited in above-amended Claim 1, the invention is a propylene polymer which satisfies the following requirements (1) to (4): (1) $\Delta H \geq 0.45 T_m + 22$, wherein ΔH is a heat of fusion (J/g) and T_m is a melting point ($^{\circ}\text{C}$) measured through differential scanning calorimetry; (2) $110 \leq T_m \leq 140$, wherein T_m is the melting point; (3) $T_h \leq 5$, wherein T_h is a half-value width ($^{\circ}\text{C}$) of the peak top of its elution curve, the elution curve being obtained in programmed temperature fractionation where a sample solution in o-dichlorobenzene is fractionated by raising the temperature from 0°C to 135°C at a heating rate of 40°C/hr ; and (4) an intrinsic viscosity $[\eta]$ of 0.5 to dl/g when measured in a solvent of tetralin at 135°C .

The rejections under 35 U.S.C. § 102(b) of Claim 1 as anticipated by JP 6-329726 (Shigeru), and of Claims 1 and 15 as anticipated by JP 8-231640 (Herrmann)¹, are respectfully traversed. All of the present claims now contain the limitations of Claim 2, not subject to these rejections.

¹ Submitted herewith is a copy of U.S. 6,407,189, which is the U.S. equivalent of Herrmann.

In addition, by the above amendment, Applicants do not concede the rejection of original Claim 1 over Herrmann. The Examiner relies on Example 4 of Herrmann. However, with a melting point of 144°C or higher and a heat of fusion of 77 J/g or higher, the relationship $\Delta H \geq 0.45 T_m + 22$ in original Claim 1, is not satisfied, because ΔH , according to the relationship, would be 86.8, which is larger than 77. More broadly, Herrmann discloses that the polyolefin has a DSC heat of fusion of < 80 J/g and a DSC melting point of > 130°C (column 1, lines 55-57). Thus, the minimum value for $0.45 T_m + 22$ is 80.5. Therefore, the polyolefin of Herrmann cannot meet the recited relationship of $\Delta H \geq 0.45 T_m + 22$.

For all the above reasons, it is respectfully requested that the above rejections be withdrawn.

The rejection of Claims 1, 2, 12-14, 15, 17 and 18 under 35 U.S.C. § 103(a) as unpatentable over JP 11-130807 (Kanamaru et al) is respectfully traversed. The Examiner's rationale is that since the method of preparation of the polymers in Kanamaru et al is the same as that claimed, then the polymer would, in effect, exhibit the same properties as the presently-claimed polymer, including intrinsic viscosity, which the Examiner admits is not disclosed in Kanamaru et al.

In reply, the newly-submitted Kanamaru Declaration describe repetition of each of Examples 2-4 of Kanamaru et al, described as Comparative Experiments 1-3, respectively, in the Kanamaru Declaration.² The data show that the intrinsic viscosity of each of the Comparative Experiments was less than the presently-recited minimum of 0.5 dl/g. Note further that the Examiner's rationale no longer holds, because the polymerization catalyst of formula (1) in Claim 15 differs from the catalyst in Kanamaru et al. The mono-bridged metallocene of Kanamaru et al must have substituent groups on both the 4- and 7-positions

² Submitted herewith is an English translation of Examples 2-4 of Kanamaru et al.

(R⁵ and R⁶) of the 2-indenyl ligand, whereas the recited metallocene of Claim 15 has no substituent group at the 4- and 7-positions (R⁸ and R¹¹) of the 2-indenyl ligand.

For all the above reasons, it is respectfully requested that the rejection over Kanamaru et al be withdrawn.

The rejection of Claim 1 under 35 U.S.C. § 112, second paragraph, is respectfully traversed. Indeed, the rejection is now moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that it be withdrawn.

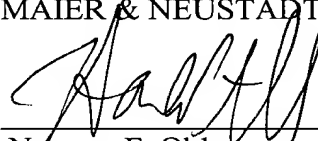
The objections to Claims 2 and 15 are respectfully traversed. Indeed, the objections are now moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that they be withdrawn.

Applicants respectfully call the Examiner's attention to the Information Disclosure Statement (IDS) filed February 24, 2003. The Examiner is respectfully requested to initial the Form PTO 1449 submitted therewith, and include a copy thereof with the next Office communication.

All of the presently pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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